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(Proj. 10.1557)

US DOC No. S-4

Copy No. 26

SOVIET MANPOWER AND PHYSICAL PRODUCTION, 1950-1960

This intelligence report was prepared as part of the US contribution to a NATO study comparing economic trends in the Free World and the Sino-Soviet bloc. Other parts of the US contribution concerned with the USSR are: S-5, Soviet GNP: 1950-1960 and S-6, Soviet GNP: 1960-1975.

DOCUMENT NO. 46  
NO CHANGE IN CLASS. ☐  
☒ DECLASSIFIED  
CLASS. CHANGED TO: TS S C  
NEXT REVIEW DATE: \_\_\_\_\_  
AUTH: HR 70-2  
DATE: \_\_\_\_\_ REVIEWER: 059885

August 24, 1956

05 JUN 1980

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SOVIET MANPOWER AND PHYSICAL PRODUCTION, 1950-1960

A. Population, 1950-1960

The new Soviet handbook, Narodnoye Khozyaystvo SSSR, (The National Economy of the USSR), April 1956, provides the first official collection of data on population and manpower in the USSR since 1939. The population estimates presented in the handbook are based on registration statistics and not on census enumeration. Soviet authorities themselves have indicated problems in the compilation of registration statistics which suggest that the population figures published in the handbook may be conservative. In addition, reconstruction of population trends shows that the net population losses during the 1941-44 period (inclusive) were extremely high -- on the order of 26 million people; gross losses, including those due to declines in the birth rate and to high mortality rates, would be between 35 and 40 million people. Thus, while the data recently published in the handbook are credible, it is likely that a census would have indicated a somewhat higher population for recent postwar years.

Pending further examination of Soviet population trends since 1939, the estimates of the population of USSR for the period 1950-1960 are based on the data in the handbook. These estimates were derived from the April 1956 population figure given in the handbook, subtracting (for the pre-1956 years) or adding (for the post 1956 years) the estimated annual natural increases. The estimates of annual natural increase for the years prior to 1956 were derived from the birth and death rates published in the handbook. (See Table 2); these rates of natural increase were then projected to 1960. An urban-rural breakdown of the total population for selected years is presented in Table 3.

TABLE 1

POPULATION OF THE USSR, 1950-1960Distributed by Voter and Non-Voter Categories(In millions of persons)

<u>Year</u> <u>1 January</u>	<u>Total</u> <u>Population</u>	<u>Number of Voters</u> <u>18 Years Old or</u> <u>Older</u>	<u>Number of</u> <u>Non-Voters</u>	<u>Average Size per</u> <u>1 year cohort</u> <u>0-17 years old</u>
1950	180.9	111.1**	69.3	3.54
1951	184.0	113.1**	70.9	3.64
1952	187.2	115.1**	71.5	3.69
1953	190.4	118.4	72.0	3.75
1954	193.4	120.8**	72.6	3.81
1955	196.8	123.2**	73.6	3.89
1956*	200.2**	125.6	74.6	3.98
1957*	203.7	127.8	75.9	4.02
1958*	207.2	129.8	77.4	4.13
1959*	210.8	131.6	79.2	4.24
1960*	214.5	133.2	81.3	4.37
1961	218.2**	134.6	83.6	4.51

\* 1 April

\*\* Data published in Soviet handbook or reports of election returns. 1961 estimate of population is implicit in data published in Voprosy Ekonomiki, No. 3, 1966.

TABLE 2

BIRTH AND DEATH RATES AND RATES OF NATURAL INCREASE IN THE USSR FOR SELECTED YEARS, 1950-1956\*

Year	Annual Average Population	Number of Births per Thousand Population	Total No. of Babies Born	Number of Deaths per Thousand Population	Total Number of Deaths	Natural Increase per Thousand	Total Natural Increase
1950	182,400,000	26.5	4,800,000	9.6	1,700,000	16.9	3,100,000
1953	191,900,000	24.9	4,800,000	9.0	1,700,000	15.9	3,000,000
1955	198,500,000	25.6	5,100,000	8.4	1,700,000	17.2	3,400,000
1956	202,000,000	26.2	5,300,000	8.7	1,800,000	17.5	3,500,000

\* All rates are given in the Soviet handbook (Narodnoye Khozyaystvo SSSR).

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TABLE 3

RESIDENCE DISTRIBUTION OF SOVIET POPULATION FOR SELECTED YEARS

(In millions of persons)

<u>Year</u> <u>1 January</u>	<u>Total</u>	<u>Urban</u>	<u>Rural</u>	<u>Kolkhoz</u>
1950*	180.9	68.6	112.3	78.9
1951*	184.0	71.8	112.2	78.8
1955*	196.8	85.6	111.2	79.0
1956*	200.2	87.0	113.2	80.0
1961**	218.2	100.5	117.7	81.2

\* Derived from The Statistical Handbook and other official data. The 1956 figures refer to 1 April 1956.

\*\* Total based on an official statement (Voprosi Ekonomiki No. 3, 1956, p. 24) concerning per capita output; breakdowns projected from workforce data (see Table 4).

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TABLE 4

CIVILIAN LABOR FORCE OF THE USSR, 1950-1960\*

(In Millions of persons)

A. Annual Average

	<u>Total</u>	<u>Agriculture</u>	<u>Industrial**</u>	<u>Other Non-Agriculture</u>
1950	89.1	52.1	15.3	21.7
1951	90.1	51.4	15.9	22.8
1952	92.3	52.3	16.3	23.7
1953	93.6	52.2	17.4	24.0
1954	97.6	54.2	18.7	24.7
1955	99.6	55.5	19.0	25.1
1960	108.4	57.7	21.7	29.0

B. Quinquennial Additions\*\*\*

1950-55	10.1	3.4	3.7	3.4
1956-60	8.8	2.2	2.7	3.9

\* Excludes forced labor.

\*\* Includes members of producer cooperative artels.

\*\*\* Based on annual averages.

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B. Labor Force, 1950-1960

The effects of the war and a lowered birth rate during the Fourth Five Year Plan (by comparison with 1940) indicate that the USSR will add fewer workers to the labor force in the Sixth Five Year Plan than in the Fifth Five Year Plan. The Sixth Five Year Plan calls for <sup>an</sup> increase of 6.6 million persons in the numbers of state workers and employees. The planned productivity goals in agriculture and other sectors of the economy will be difficult to achieve, and additional increments of labor will probably be needed to maintain the plan levels of output. It is estimated that the total labor force increment during the Sixth Five Year Plan will approach 8.8 million persons, in large part as the result of reductions in the number of men in the armed forces.

The estimates of the total civilian labor force presented in Table 4 were derived as the sum of: a) workers and employees; b) kolkhoz and private peasants; and c) the members of producers cooperative artels. The breakdown of this total labor force by branch of economy was derived as follows:

The agricultural labor force was estimated on the basis of pre-war (1937-38) labor requirements of agriculture. Labor inputs were calculated for individual crops and adjusted for changes in technology and institutional structure. The adjusted labor input coefficients were then applied to the 1951 estimates of agricultural production. Administrative and subsidiary agricultural workers were calculated independently and added to provide a total agricultural labor force estimate for 1951. The agricultural labor force for other years was obtained by adding estimates of net increase to the base year (1951) force.

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The industrial labor force is calculated from data on the number of workers and employees given in the Soviet Handbook and from data in the Sixth Five Year Plan. Members of producers cooperative artels, which are included in the industrial category of Table 4, are estimated to have been 1.2 million in 1950, 1.7 million in 1954, and 1.6 million in 1955. The estimates for the years 1951, 1952 and 1953 are interpolations. It is not likely, from the evidence of the Fifth Five Year Plan period, that this group will grow markedly during the Sixth Five Year Plan. The category "Other non-agriculture" in Table 4 is a residue.

C. Industrial Production, 1950-1960

1. Aggregate indexes. Soviet industrial production during the Fifth Five-Year Plan increased by 76 percent, thereby substantially overfulfilling the plan goal. Heavy industry, due to its favored position as a resource claimant, grew by 82 percent while the output of light industry increased by only 54 percent.

The Sixth Five-Year Plan calls for industrial output to be 65 percent greater in 1960 than in 1955. It is estimated that increases in investment and labor force will enable Soviet industry to meet this target. Furthermore, in the light of substantial overfulfillments in both the Fourth and Fifth Five-Year Plans, and considering that Soviet policy consistently seeks to maximize industrial growth, utilizing for this purpose all unforeseen opportunities arising during the course of a planning period, overfulfillment of the industrial target is regarded as possible.

The indexes of industrial production presented in Table 5 were calculated in the following manner. For the period 1951-55, individual sector indexes were constructed by using commodity production estimates and

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1950 Soviet price weights. These sector indexes were in turn combined into indexes for heavy and light industry and total production using GNP value-added weights. The differences between these calculated indexes and the Soviet index are probably attributable to the following factors: 1) a poor sample of machinery and equipment items which may understate the calculated growth of this sector; 2) an undetermined amount of double counting in the Soviet index in excess of that in the calculated index which may overstate the relative importance of fast growing industries; 3) the possible introduction of new products at newly established prices into the Soviet production index for which no allowance is made in the estimated Soviet index; and 4) the inclusion of an index of home-processed foods in the calculated index for light industry, which depresses the latter index relative to the official index.

2. Commodity Output. Tables 6, 7 and 8 present estimates of the physical output of selected industrial commodities.\* With the exception of non-ferrous metals, the data were derived from official Soviet announcements of plan fulfillment, the Sixth Five Year Plan decrees, and the recent Soviet handbook, Narodnoye Khozyaystvo SSSR. The non-ferrous metals were derived independently from estimates of the requirements for these metals.

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\* The selected commodities correspond to those presented in Tables 11, 12 and 13 of NATO document C-M(55)119, except that a few additional items are included in Table 6.

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TABLE 5

SOVIET PRODUCTION INDEXES FOR THE FIFTH AND SIXTH FIVE-YEAR PLANS

	(1950=100) <u>Fifth Five-Year Plan</u>	(1955=100) <u>Sixth Five-Year Plan</u>
Total Industry	176**	165
Heavy Industry	182**	170
Energy	171	178
Metals	174	158
Chemicals	168	186
Construction Materials	250	245
Forest Products	123	123
Machinery and Metalworking*	202	180
Military end-items	182	142
Light Industry	154**	147
Food Products	130	130
Manufactured Consumer Goods	172	153
Consumer Durables	385	228

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\* Includes military end-items.

\*\* The Soviet official indexes (1950=100) for these three items are as follows:

Total Industry	185
Heavy Industry	191
Light Industry	176

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TABLE 6

OUTPUT OF SELECTED INDUSTRIAL COMMODITIES

(1954, 1955 and 1960)

<u>Commodity</u>	<u>Unit</u>	<u>1954</u>	<u>1955</u>	<u>1960</u>
Hard coal	Mil. MT	240	272	407
Crude petroleum	Mil. MT	59	71	135
Electric power	Bil. KWH	151	170	320
Crude steel	Mil. MT	41	45	68
Copper, refined	Thous. MT	413	462	739
Aluminum	Thous. MT	505	588	1235
Sulphuric acid	Mil. MT	3	4	7
Cement	Mil. MT	19	22	55
Commercial vehicles	Thous. Units	301	329	430
Passenger Cars	Thous. Units	96	109	201
Merchant vessels	Thous. GRT	100	103	148
Agricultural Machinery	Mil. 1955 Rubles	4150	5398	9500
Metal Cutting Machines	Thous. Units	102	118	200
Forging-pressing Machines	Thous. Units	15	16	26
Metallurgical Equipment	Thous. MT	154	172	280
Lumber	Mil. cu. m.	61	58	80
Footwear, leather	Mil. prs.	280	299	455
Cotton Fabrics	Mil. meters	5590	5904	7270

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TABLE 7

GROWTH OF OUTPUT OF SELECTED COMMODITIES  
(1937=100)

<u>Commodity</u>	<u>1937</u>	<u>1948</u>	<u>1950</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1960</u>
Hard coal	100	136	167	201	217	246	369
Electric power	100	182	251	367	417	470	884
Crude petroleum	100	102	133	185	208	248	474
Crude steel	100	107	153	215	232	255	386
Copper, refined	100	229	302	393	413	462	739
Aluminum	100	355	553	1145	1329	1547	3250

TABLE 8

SOURCES OF COMMERCIAL ENERGY USSR: 1937, 1950, 1955, AND 1960  
(Millions Metric Tons Coal Equivalent)\*

<u>Commodity</u>	<u>1937</u>	<u>1950</u>	<u>1955</u>	<u>1960</u>
Hard coal	110.4	184.2	272.0	407.0
Lignite	11.8	51.5	79.7	124.6
Crude petroleum	37.0	49.1	91.0	175.5
Natural gas	1.5	4.9	8.4	33.0
Hydro-electricity	2.9	8.9	13.8	35.4
Total	163.6	298.6	464.9	775.5

\* Conversions were made on the basis of the conversion factors given in the United Nations' Yearbook 1954.

D. Agricultural Production, 1950-1960

Agricultural production increased only slightly during the period of the Fifth Five Year Plan. The production of food crops increased only 10 percent while the production of industrial crops increased only 15 percent. The elevated status given to agriculture in 1953 is expected to be maintained during the Sixth Five Year Plan. Increased investment, the revisions in crop pattern, and maintenance of higher monetary incentives are expected to induce an expansion of agricultural output during the Sixth Five Year Plan period. It is estimated that the production of food crops will increase by more than 20 percent and the production of industrial crops by more than 30 percent between 1955 and 1960.

Estimates of the annual average production of selected commodities are presented in Table 9. These estimates were derived from plan fulfillment announcements, the Sixth Five Year Plan decrees and the new Soviet handbook.

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TABLE 9

OUTPUT OF SELECTED AGRICULTURAL COMMODITIES AND LIVESTOCK

<u>Commodity</u>	<u>Unit</u>	<u>1951-55 Average Output</u>	<u>1956-60 Average Output</u>
Bread Grains	Mil. MT	56	65
Fodder Grains	Mil. MT	32	45
Potatoes	Mil. MT	66	81
Cotton, ginned	Thous. MT	1322	1590
Wool, grease basis	Thous. MT	225	304
Sugar, raw	Thous. MT	3104	4548
Meat	Thous. MT	3500	4700
Cattle	Mil. head*	57.8	n.a.
Pigs	Mil. head*	27.9	n.a.
Sheep and Goats	Mil. head*	108.5	n.a.

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\* Average of 1 January figures for the five years.

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